

**Montana Board of Oil and Gas Conservation
Environmental Assessment**

Operator: Whiting Oil and Gas Corporation
Well Name/Number: Double Bar M 24-32H
Location: SE SW Lot 2 Section 32 T27N R57E
County: Richland, **MT;** **Field (or Wildcat)** W/C (Bakken Horizontal)

Air Quality

(possible concerns)

Long drilling time: No, 30 to 40 days drilling time.

Unusually deep drilling (high horsepower rig): No, triple derrick drilling rig to drill a single lateral Bakken Formation horizontal well test to 20,074'MD/10,335'TVD.

Possible H2S gas production: H2S gas production possibility is slight.

In/near Class I air quality area: No Class I air quality area in the area of review.

Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under rule 75-2-211.

Mitigation:

☒ Air quality permit (AQB review)

☐ Gas plants/pipelines available for sour gas

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: No special concerns – using triple derrick drilling rig to drill a single lateral Bakken Formation horizontal well test to 20,074'MD/10,335'TVD. If existing pipeline for H2S gas in the area, gas can be gathered or if no gathering system nearby, H2S gas can be flared under Board Rule 36.22.1220.

Water Quality

(possible concerns)

Salt/oil based mud: Yes, oil based invert drilling fluids will be used on the mainhole.

The horizontal lateral will be drilled with brine water. The surface hole will be drilled with freshwater and freshwater drilling fluids.

High water table: No, no high water table anticipated in the area of review.

Surface drainage leads to live water: Yes, nearest drainage is an unnamed ephemeral drainage to the Missouri River, about 3/8 of a mile to the west from this location.

Water well contamination: None, closest water wells are about 1/2 of a mile to the northwest, about 5/8 of a mile to the northwest, about 3/4 of a mile to the north and about 7/8 of a mile to the northwest from this location. Depth of these domestic and stock water wells range from 65' to 850'. Surface casing hole will be drilled with freshwater and freshwater drilling fluids. Surface casing will be run and cemented to surface from 2000'.

Porous/permeable soils: No, sandy clay soils.

Class I stream drainage: Class I stream drainage, the Missouri River.

Mitigation:

☒ Lined reserve pit

☒ Adequate surface casing

☐ Berms/dykes, re-routed drainage

☐ Closed mud system

☐ Off-site disposal of solids/liquids (in approved facility)

☐ Other: _____

Comments: 2000' of surface casing cemented to surface adequate to protect freshwater zones and to cover the base of the Fox Hills Formation.

Soils/Vegetation/Land Use

(possible concerns)

Stream crossings: No, stream crossings anticipated.

High erosion potential: Yes, moderate cut, up to 39.9' and moderate fill, up to 23.1', required.

Loss of soil productivity: None, location to be restored after drilling well, if well is nonproductive. If productive unused portion of drillsite will be reclaimed.

Unusually large wellsite: No, a large wellsite 400'X440' location size required.

Damage to improvements: No surface use is hilly grazing land.

Conflict with existing land use/values: Slight

Mitigation

☐ Avoid improvements (topographic tolerance)

☐ Exception location requested

☒ Stockpile topsoil

☐ Stream Crossing Permit (other agency review)

☒ Reclaim unused part of wellsite if productive

☐ Special construction methods to enhance reclamation

☐ Other _____

Comments: Access to location will be over existing county road, #339. A short access of 1537' will be built off county road into location. Oil based invert drilling fluids will be recycled. Completion fluids will be hauled to an authorized Class II Disposal. Drilling cuttings and mud solids will be fly ashed in the lined pit and buried with subsoil cover. No special concerns.

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Nearest residences are about 5/8 of a mile to the northwest from the location.

Possibility of H₂S: H₂S potential is slight.

Size of rig/length of drilling time: Triple drilling rig/short 30 to 40 days drilling time.

Mitigation:

☒ Proper BOP equipment

☐ Topographic sound barriers

☐ H₂S contingency and/or evacuation plan

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: Adequate surface casing and operational BOP should mitigate any problems. No concerns.

Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): None.

Proximity to recreation sites: None

Creation of new access to wildlife habitat: None

Conflict with game range/refuge management: None

Threatened or endangered Species: Species identified as threatened or endangered are the Pallid Sturgeon, Interior Lease Tern, Whooping Crane and Piping Plover. Candidate species are the Sprague's Pipit and the Greater Sage-Grouse. MTFWP Natural Heritage Tracker website lists three (3) species of concerns. They are Piping Plover, Whooping Crane and the Red-headed woodpecker.

Mitigation:

- ☐ Avoidance (topographic tolerance/exception)
- ☐ Other agency review (DFWP, federal agencies, DSL)
- ☐ Screening/fencing of pits, drillsite
- ☐ Other: _____

Comments: The surface ownership is private. There may be species of concern that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to what he would like done, if a species of concern is discovered at this location. The Board of Oil & Gas has no jurisdiction over private surface lands.

Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites None identified.

Mitigation

- ☐ avoidance (topographic tolerance, location exception)
- ☐ other agency review (SHPO, DSL, federal agencies)
- ☐ Other: _____

Comments: On private surface lands. There may be possible historical/cultural/paleontological sites that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to his desires to preserve these sites or not, if they are found during construction of the wellsite. The Board of Oil & Gas has no jurisdiction over private surface lands.

Social/Economic

(possible concerns)

- ☐ Substantial effect on tax base
- ☐ Create demand for new governmental services
- ☐ Population increase or relocation

Comments: No concerns.

Remarks or Special Concerns for this site

Bakken Formation horizontal well test to 20,074'MD/10,335'TVD. No concerns.

Summary: Evaluation of Impacts and Cumulative effects

No significant long term impacts expected, some short term impacts will occur.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): \s\ Steven Sasaki
(title:) Chief Field Inspector
Date: January 29, 2012

Other Persons Contacted:

Montana Bureau of Mines and Geology, GWIC website
(Name and Agency)
Water wells in Richland County
(subject discussed)
January 29, 2012
(date)

US Fish and Wildlife, Region 6 website
(Name and Agency)
ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES
MONTANA COUNTIES, Richland County
(subject discussed)

January 29, 2012
(date)

Montana Natural Heritage Program Website (FWP)
(Name and Agency)
Heritage State Rank= S1, S2, S3, T27N R57E
(subject discussed)

January 29, 2012
(date)

If location was inspected before permit approval:

Inspection date: _____

Inspector: _____

Others present during inspection: _____